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ABSTRACT

This paper considers preliminary issues in the development of quality educational outcome indicators for students with disabilities within the context of current changes in general education and a conceptual model of important educational outcomes and indicators for all children. The approach and development process of the National Center on Educational Outcomes (NCEO) are first briefly described. Then definitions of key terms concerning outcomes, indicators, and a comprehensive system of indicators are offered. Seven fundamental assumptions guiding NCEO activities and their implications are then identified. Two alternative models are then proposed, one of which includes five broad outcome areas (presence, participation in the system, accomplishment, contribution, and satisfaction) while the other views all outcomes as accomplishments and evaluates them for nine accomplishment domains (e.g., cognitive and conceptual, attitudes, physical and health, satisfaction, adaptive living). A system of indicators for assessing outcomes is then proposed. Finally, the following unresolved issues are addressed: (1) intended versus unintended outcomes; (2) direct versus indirect outcomes; (3) same versus different indicators; (4) category specific versus noncategorical indicators; (5) indicators differentiated by severity of disability; (6) indicators differentiated by developmental level; and (7) system level versus individual level indicators. (11 references) (DB)

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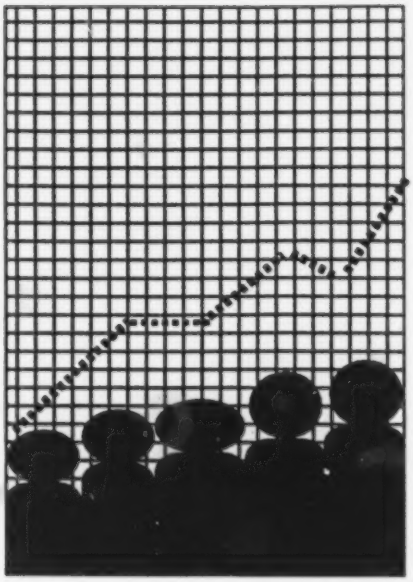

WORKING PAPER 1

National Center on Educational Outcomes
For students with Disabilities

University of Minnesota

A Conceptual Model of Educational Outcomes for Children and Youth with Disabilities

This paper was prepared to elicit reactions on initial ideas related to definitions, assumptions, and a preliminary model of outcomes for children and youth with disabilities. This paper should not be quoted or cited at this time. Models and indicators identified herein are tentative and will change.

EC 301 343

Draft
July 4, 1991

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Working Paper 1

Revised

A Conceptual Model of Educational Outcomes for Children and Youth with Disabilities

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DRAFT

July 4, 1991

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Introduction

The current report card on American education does not look good. America's public schools continue to experience trouble despite nearly a decade of reform activities. Recent reports from commissions, task forces, and public opinion polls highlight the continued presence of significant problems in current educational practice. Schools and school personnel are criticized for failing to deliver with excellence. In addressing these problems, consistent themes in the reports are that schools and school personnel will be expected to deliver more than ever before, and to be held accountable for the outcomes.

The current emphasis on educational opportunities and outcomes for students in America's schools is said to apply to all students. Yet, policy makers who have been identifying goals and considering methods for assessing outcomes for students in America's public schools often have failed to consider the significant number of students with disabilities. Legislation and social initiatives have increased the diversity of students attending schools, including those with limited English proficiency, those with different cultural backgrounds, and those with disabilities. Included in our schools today are students with visual and hearing impairments, emotional disabilities, mental retardation, learning disabilities, physical impairments, and severe multiple disabilities. The National Council on Disability (1989) has indicated that

> The time has come to ask the same questions for students with disabilities that we have been asking about students without disabilities. Are they achieving? Are they staying in school? Are they prepared to enter the work force when they finish school? Are they going on to participate in post secondary education and training? Are they prepared for adult life? (p. 2)

Calls for reform in American education are accompanied by calls to develop better measures to assess the broad results of learning and teaching. Work groups, advisory boards, and panels are convened to decide how best to assess educational outcomes. The desire to assess the results of education and progress toward national goals has led to the need for a comprehensive system of outcome indicators.

Public investment in educational programs for children and youth with disabilities is now generating interest in examining educational outcomes for

children and youth with disabilities. This interest reflects two major aspects of the current state of affairs for special education programs. First, special education is at a point where it is necessary to move beyond the concern with equal access to education. As argued by the National Council on Disability (1989), it is time to concentrate on the quality of educational experiences for children and youth with disabilities. In order to make judgments about educational quality, we need to have indices by which to judge the quality and nature of educational experiences and results. A second aspect of the current interest in developing indicators for students with disabilities is that general education is proceeding with its own agenda to raise expectations for students and to identify outcomes to be reached by "all" students. General education policy is being established with limited recognition of students receiving special education services. In order to maintain the progress that has been made in establishing a viable partnership between general education and special education, policy in special education must be developed along with that in general education, and it must be developed in a way that is maximally integrated with general education. If students receiving special education services are not being evaluated on the same or a complementary set of outcomes, then educators and the general public may not see the value of the participation of these students in general education settings.

The National Center on Educational Outcomes (NCEO) was established in October 1990 to work with states and other policy groups to develop a model of educational outcomes for students with disabilities and to generate a list of indicators of these outcomes. The model and list of indicators are to evolve over time as input is received from key stakeholders and others interested in assessing educational outcomes. This paper represents a preliminary statement of these issues that will likely be modified through extensive consultation with policy makers, education evaluators, educational researchers, parents, persons with disabilities, and persons from diverse racial, ethnic, and linguistic backgrounds.

NCEO Approach to Identifying Outcomes

A brief overview of the NCEO approach to identifying outcomes helps put this paper in perspective. First, this paper places the discussion of outcomes and indicators within the broader context of education. Within this context, decisions can be made about the management of important resources and educational processes to achieve the desired outcomes of education. Second, this paper begins with definitions to clarify the meaning and usefulness of outcomes and indicators with which to evaluate the results of education for children and youth with disabilities. Third, this paper is portrayed within the fuller NCEO development process for designing a conceptual model of important educational outcomes and indicators. Each of these approaches and the reasons for them are discussed in brief here so that the reader can best understand the three critical sections of this paper (definitions of key terms, fundamental assumptions, and the preliminary model of outcomes).

A Conceptual Model of Education

The primary value of emphasizing outcomes and indicators in education is to improve decisions and the value of educational experiences for students. This approach assumes that such decisions can be made more effectively if they are based on data. We want warning signs when something can be improved, when something is not working right, when education is not producing expected outcomes. Not only do we want the warning signs, but we want them to give us an idea of the problems and potential solutions within the educational system. And, indicators can demonstrate the positive effects of education improvement efforts.

The attainment of desired outcomes from education is a consequence of many factors. Interpreting information on outcomes depends on a full understanding of how essential educational resources (contextual and financial) and processes interact to influence the results of education (Chen, 1990; DeStefano & Wagner, 1990; Levine & Lezotte, 1991; Oakes, 1986; Selden, 1990; Shavelson, McDonnell, & Oakes, 1989; Walberg, 1984). Understanding the interactions and relationships depends on the results of previous, current, and future research and development efforts. Without such

understandings, however, policy makers, citizens, and educators are quite limited in the options they can exercise to improve the experiences and outcomes of education. To be most useful, a conceptual model of education must apply to all students, and point to central factors that can be used to alter and improve educational experiences. Individual characteristics of a student may be one component of the model, but it should be emphasized that the most desirable models are ones that effectively include inputs and outputs relevant to all students including those with socioeconomic disadvantage, disabilities, or characteristics associated with negative educational outcomes.

Figure 1 is a template for a conceptual model of the resources and processes that can influence the attainment of school and postschool outcomes for children and youth. Important school and longer-term life outcomes are influenced by the presence of certain context factors and the availability and application of resources. These in turn affect the organization and processes of educational programs and, together with educational processes, influence a broad range of educational outcomes for children and youth. In Figure 1, some potential context factors, educational resources, and educational processes have been listed that interact in a variety of ways to affect student attainment of the desired outcomes of education. Such influences are important to consider in a model that stresses outcomes of education, since such factors are those that can be directly and indirectly influenced to improve the results of education. At this point, note that the outcome cells in Figure 1 are empty. They will be filled after clarification of developed definitions, assumptions, and a suggested model of outcomes. At the same time, we have used two three dimensional models to show that outcomes will be assessed in a number of domains, direct and indirect outcomes will be assessed, some will be intended outcomes, while others will be unintended, and outcomes may be measured before, during and post-school. It is important to define and evaluate the relationships that may exist between resources and processes, and educational outcomes to help focus decision making on the key factors that will improve the appropriateness and effectiveness of educational programs and, ultimately, the quality of life for individuals with disabilities.

NCEO Development Process

The development of a model of outcomes and a list of possible indicators for those outcomes is one of six interrelated NCEO activities. A representation of the six

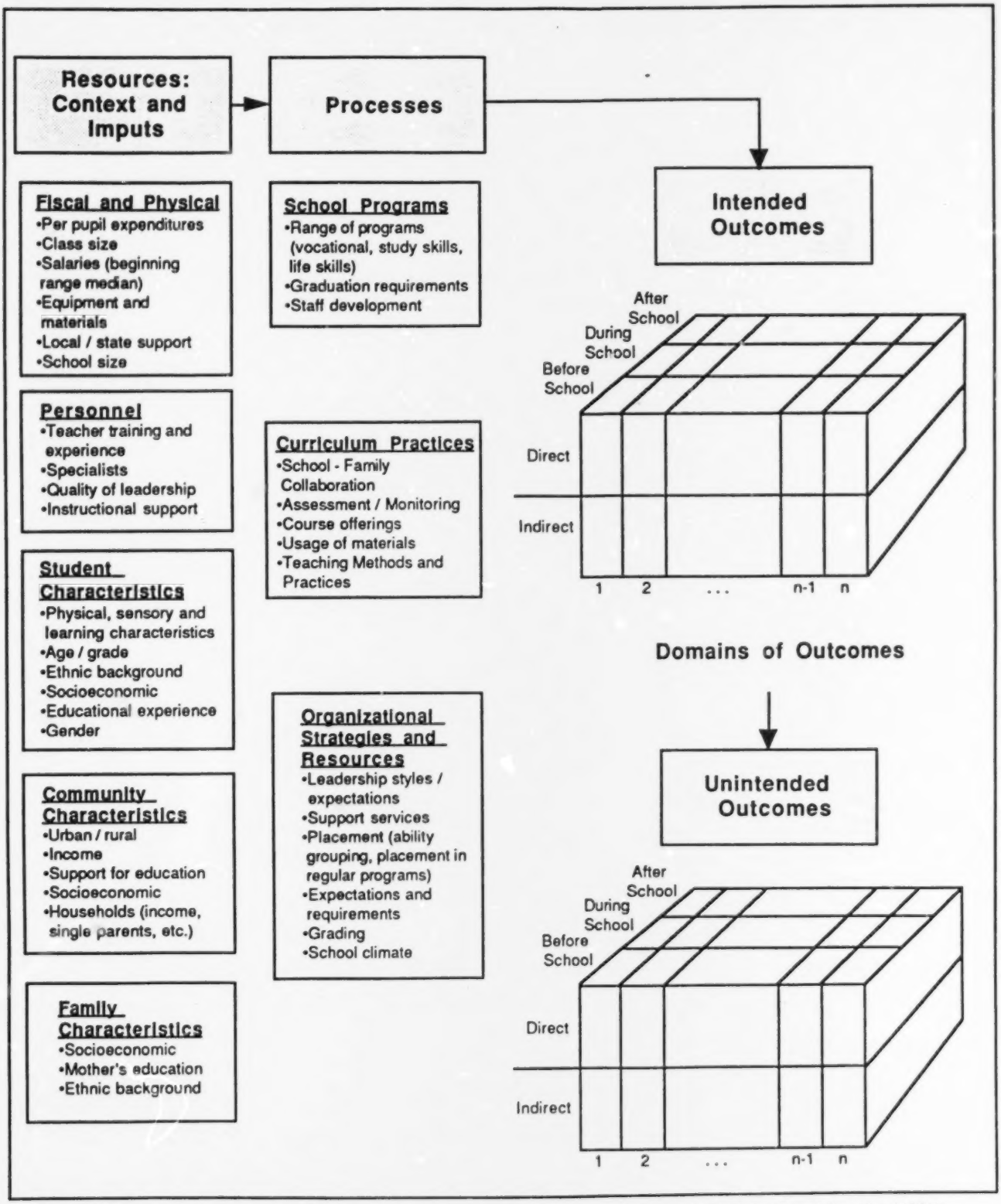

Figure 1. Template for a Model of Education [adapted from DeStefano & Wagner, (1991), Levine & Lezotte (1991), Oakes (1986), Shavelson (1987)]

activities and the relationships among them is provided in Figure 2. This figure indicates that the activities are interrelated in that they each affect the others, and therefore the development of a model of outcomes and list of indicators is influenced by other NCEO activities, such as the ongoing survey of states. Similarly, Strategic Planning (Activity 5) and Exchange of Information about the model and indicators, Solutions to Technical Issues (Activity 4), and results of analyses (Activity 6) are support and umbrella activities for the other four Center activities. Model development and identification of indicators (Activity 2) form the "hub" for all other activities. Figure 2 also indicates that the six interrelated activities do not necessarily take place in sequential order. Certain activities that initially occur following others may cycle back to influence the others. This type of interactive process will continue throughout the development and testing of feasibility of a system of indicators. For example, state perspectives obtained through the annual surveys (Activity 1) will help shape the model of outcomes and the system of indicators (Activity 2), the allocation of effort to resolve technical issues (Activity 4), information exchange activities (Activity 3), and other activities. Thus, the development and refinement of a model of outcomes and corresponding system of indicators is viewed as an ongoing task of the NCEO.

Model development is depicted in Figure 3. The procedural approach begins with developing and gaining consensus on (1) definitions of essential concepts (e.g., outcome), and (2) assumptions of the model. Based on consensus about these definitions and assumptions, conceptual categories of outcomes, with appropriate subcomponents, will be proposed. It is this outcomes model that is used to generate indicators of outcomes. All aspects of this initial model of outcomes will be the topic of the consensus process. The indicators, in turn, will be refined on the basis of state practice surveys, secondary data analysis, identification and solution of technical problems, syntheses of research, and the consensus process.

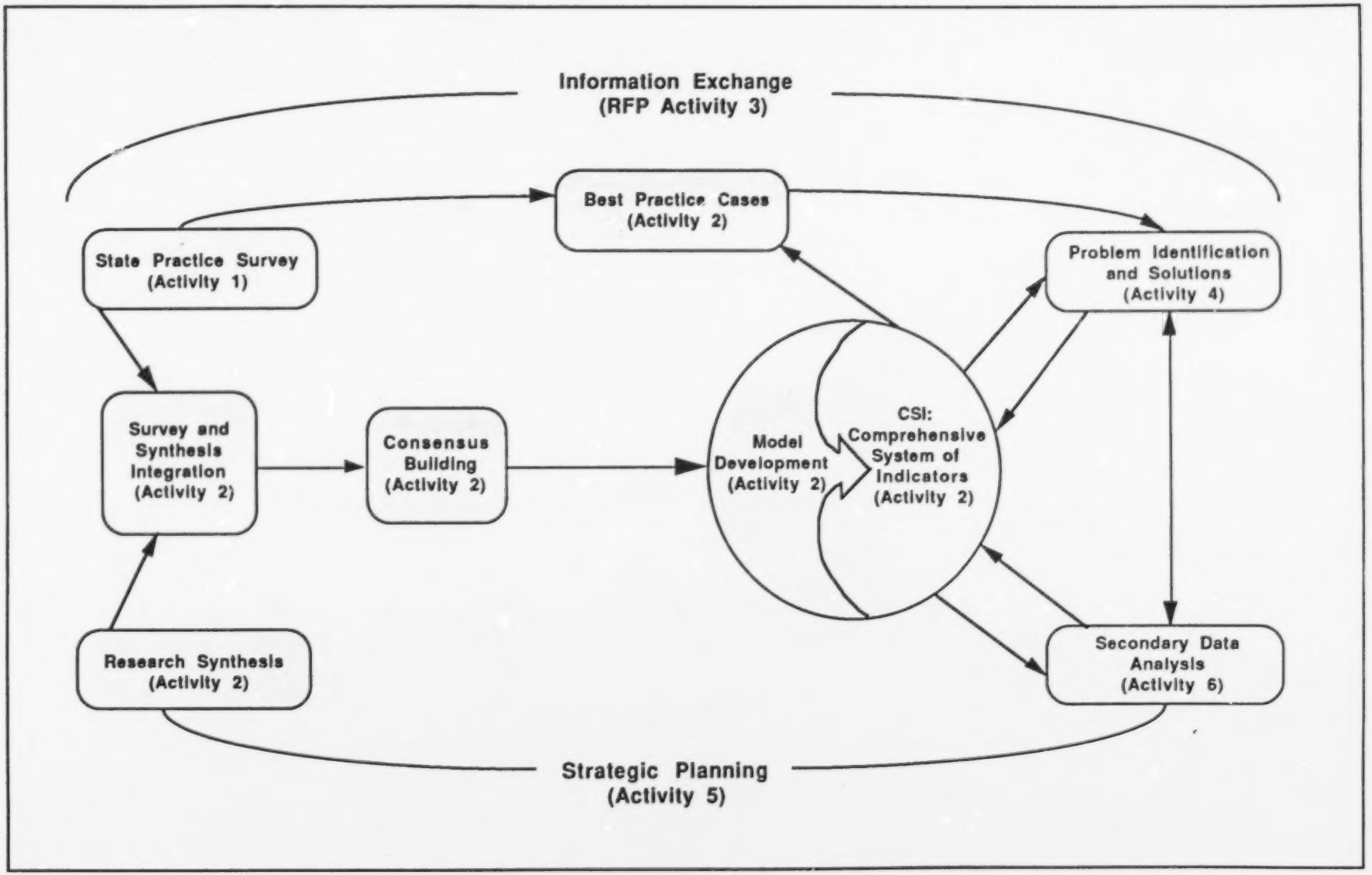

Figure 2. Representation of Relationships Among NCEO Activities

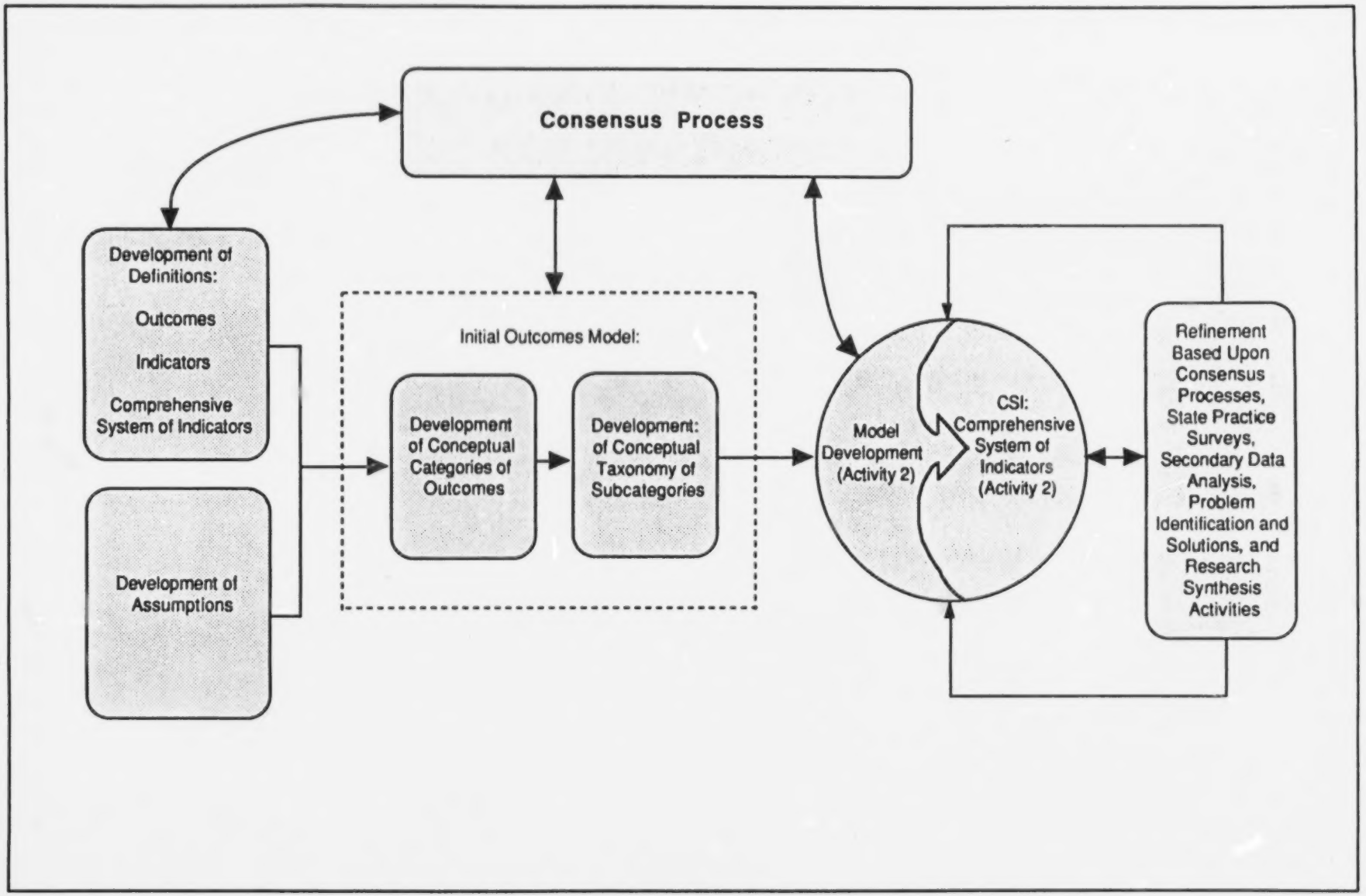
Consensus Process
Development of Definitions:
Outcomes
Indicators
Comprehensive System of Indicators
Development of Assumptions
Initial Outcomes Model:
Development of Conceptual Categories of Outcomes
Development: of Conceptual Taxonomy of Subcategories
Model Development (Activity 2)
CSI: Comprehensive System of Indicators (Activity 2)
Refinement Based Upon Consensus Processes, State Practice Surveys, Secondary Data Analysis, Problem Identification and Solutions, and Research Synthesis Activities

Figure 3. Representation of Steps in Developing the Model of Outcomes

Definitions of Key Terms

Educators and policy makers speak regularly about outcomes, outcome-based education, educational indicators, and outcomes indicators. Nationally there is a shift in conceptions of education, away from a focus on issues of access and process in providing services toward a focus on the achievement of results or outcomes from such services. Increasingly, education is viewed as "the result achieved, the learning that takes root when the process has been effective" (Finn, 1990, p. 586). Despite the emphasis on achieving results in educational programs, there is little or no consensus on exactly what those results should be, or even on the meaning of commonly-used terms such as "outcomes" and "indicators." Selden (1990) indicates that arriving at agreement about terminology is a difficult process. He states that "Just defining indicators and getting everyone in the system, from local school staff to national statisticians, to report the figures in a valid and consistent manner, is difficult" (p. 383). Selden encourages educators to keep the development and use of outcomes indicators simple. Certainly it is important to make sure that everyone is starting with the same idea of what terms mean whenever a model of outcomes and indicators is proposed.

The key terms for NCEO's work are "outcomes," "indicators," and "comprehensive system of indicators." In this section, the three key terms are defined, important points about them clarified, and desired characteristics delineated.

Outcomes

In dictionaries, **outcomes** are defined as results, effects, or consequences of events, processes, or experiences. NCEO is using a narrower definition to reflect the focus on educational outcomes. The NCEO working definition is as follows:

> **Educational Outcome = the result of interactions between individuals and schooling experiences.**

Points of Clarification

Educational outcomes may be direct or indirect, they may be positive or negative, and they may be intended or unintended. There are four key terms in the NCEO definition of "outcome": educational experiences, individuals, interactions, and result.

The term educational experiences is used to refer to learning experiences that are planned, managed, and organized by schools and other agencies designated to serve infants, children, and youth. The planning, management, and organizing of learning experiences can occur in a number of ways, directly or indirectly, and at various levels. For example, teachers plan, manage, and organize activities designed to teach reading, language and writing skills, or to facilitate development of positive interpersonal relationships among students, improved social adjustment, etc. A community agency may develop an Individual Family Service Plan designed to have an effect on families and in the long run on individual children. They may become significantly involved in the development of individual family service plans for infants with disabilities. Learning takes place in schools; it also takes place in non-school settings. A teacher may take a class on a field trip to a zoo, based on the belief that such trips enable individual children to gain a richer understanding and comprehension of a variety of outcomes.

The term individuals includes infants, children, youth, and young adults. This term is used to emphasize the importance of the individual, the critical importance of the development and adjustment of individuals in the educational system, and the growing recognition that education is a life-long learning process. At the same time, the plural form is used to reflect the interest in group-level information needed for decision making at the state level and even the national level.

The term interactions is used to recognize the fact that, while schools bring to students a set of experiences, individual students, including those with disabilities, differ in the experiential background, characteristics, and history with which they enter learning situations. They also differ on a set of characteristics and competencies important to the process of learning, including their skills, abilities, temperament, and motivation to learn. These individuals attend schools and engage in life experiences where they learn and acquire skills. The product of the recurring interactions between the individual and school experiences, which in

turn are influenced by the individual's life experiences, is an educational outcome. The interaction is reciprocal between the individual and the planning, management, and organizing of learning experiences.

Learning experiences are planned, managed, and organized for the purpose of bringing about results or effects. Educators and developmentalists commonly refer to results such as achievement, graduation, postsecondary status (employment, education), and life adjustment. While the intended outcomes of educational experiences are positive results, it is recognized that to obtain a true picture of the health of the educational system, some negative unintended outcomes may need to be monitored as well.

Desired Characteristics of Outcomes

Educational outcomes are the results of interactions between individuals and educational experiences. We believe that the outcomes relevant for our purposes should:

- Be valued by society;
- Reflect the degree to which essential cultural expectations have been attained in such areas as participation and achievement in normal social, educational, training, employment, leisure, and community environments;
- Include both direct and indirect results of educational experiences;
- Be relevant to all individuals, regardless of personal characteristics; and
- Be a product of learning and experience (what has been learned) rather than how learning occurred.

Indicators

In dictionaries the term **indicator** is defined as a number, index, feature, or measure that enables comparisons to be made. NCEO is using a broader definition to reflect the focus on both quantitative and qualitative indicators. The NCEO working definition is as follows:

Indicator = a symbolic representation of one or more outcomes (or inputs, contexts, or processes) that can be used in making comparisons.

The word **indicator** carries multiple meanings. The general public thinks of economic indicators like the Consumer Price Index, the rate of unemployment, and the Gross National Product. Educational policy makers often talk about input, process, context, and outcome indicators. While NCEO's immediate focus will be on **outcome indicators**, other indicators (those for inputs, contexts, and processes) are important in the conduct of education, and should be defined to assist in improving the management and operation of responsible educational decision making and programs.

Points of Clarification

The important terms in the definition of "indicator" are symbolic representation, outcomes, and comparisons.

The term symbolic representation is used in this definition rather than the term "number" because indicators can be other than numerical. Indicators may be quantitative (percentage of students who . . . , scores on an achievement test), or they may be qualitative (degree of satisfaction with . . . , appropriateness of organization and delivery of instruction). This definition recognizes that some properties of educational systems are not directly or perfectly measurable and representable by a specific number (Shavelson, McDonnell, & Oakes, 1989).

Outcomes, as noted previously, are the results of interactions between individuals (infants, children, and youth) and educational experiences (which in the case of infants may include early interventions). Although NCEO is beginning with a focus on indicators of outcome, it is important to keep the broader perspective in mind. Indicators of input, context, and process are also important to assess when modifying and managing policies and practices to improve educational experiences and outcomes for students with or without disabilities.

Comparisons is the third key term in the definition. Comparisons are made at different levels, at different times, and using differing referents (Smith, 1988). Some comparisons of indicators involve comparisons at time 1 and time 2. Others involve

comparisons of differences among outcomes at a specific time. Some comparisons involve looking at outcomes in reference to a standard (like the national goals). Selden (1990) stated that:

> Analyzed over time, used to compare units, or examined in relation to a social goal or standard, indicators . . . reveal trends, show where relative strengths and weaknesses lie in a system, and report how we are doing in relation to how we want to do." (p. 384)

Desired Characteristics of Indicators

Indicators are symbolic representations that enable comparisons to be made of one or more educational outcomes for infants, children, and youth. They should:

- Be reliable and valid proxies of the desirable outcomes of education (e.g., time in school, achievement, etc.);
- Be directly associated with particularly significant aspects of schooling or areas of policy interest;
- Be expressed in a positive direction to the extent possible, but also be sensitive to unintended effects;
- Include both individual-level and system-level representations of outcomes;
- Be based on procedures that are concise, timely, reliable, and valid; and
- Use procedures that are already available, or feasible to derive from existing data, if possible.

Comprehensive System of Indicators

NCEO is using a broad definition of a comprehensive system of indicators (CSI) even though its initial focus will be on developing a system of outcomes indicators. The NCEO working definition is as follows:

> **Comprehensive System of Indicators (CSI) = a set of indicators of educational inputs, contexts, processes, and outcomes.**

Points of Clarification

Although the term "comprehensive" is used to describe the system of indicators, it is recognized that probably no identified system of indicators is truly complete. The system of indicators to be identified by NCEO is seen as evolving over time. This will always be so as the educational environment changes. The main terms in the definition of a comprehensive system of indicators (outcomes and indicators) have been defined previously. New terms used in this definition are inputs, contexts, and processes.

Inputs are financial and human resources that are available to the schools and the educational system for use in meeting stated missions and objectives. Inputs include fiscal resources, teacher quality, and the characteristics of students who are served.

Contexts are characteristics of schools, and characteristics of the communities in which students live and develop. Community socioeconomic status (SES), for example, is among the most frequently identified contextual aspects of education.

Processes are events such as "the adequacy of the curriculum and instruction received by students, the nature of the school as an organization in pursuit of educational excellence and equity" (Shavelson et al., 1989, p. 7). These include the types of characteristics identified in research on critical instructional factors and effective schools research (Christenson, Ysseldyke, & Thurlow, 1989; Levine & Lezotte, 1991; Walberg, 1984).

Desired Characteristics of a Comprehensive System of Indicators

A comprehensive system of indicators is a set of indicators of inputs, contexts, processes, and outcomes. A comprehensive system of indicators should:

- Show the relationships that exist or are hypothesized to exist among inputs, contexts, processes, and outcomes;
- Include quantitative and qualitative data;
- Include both individual-level and system-level indicators; and
- Provide data defined in terms of time (when data elements are collected) that are relevant to current or anticipated problems

Fundamental Assumptions Guiding NCEO Activities

Before identifying a model of outcomes and a system of indicators for students with disabilities, it is important to articulate a perspective on special education and related services. Implicit in the model is the view that special education is a capacity-building resource for general education and a support to students and families. The purpose of special education is to enable each individual with a disability to live as normal a life as possible. Thus, special education exists for the purpose of preventing impairments from becoming disabilities and for the purpose of compensating for disabilities. Included in our schools today are students with visual, hearing, emotional, learning, physical, and multiple disabilities. Yet, policy makers who have been identifying goals and assessing outcomes for students in America's public schools often have omitted from consideration these students with disabilities.

The foundation for a comprehensive system of indicators (CSI) rests upon a number of critical underlying assumptions and premises, each of which has implications for the development of the CSI. Presented in this section are the critical assumptions or premises that guide NCEO activities. They are organized by the key concept to which they relate: the model of outcomes, the specific outcomes indicators, or the comprehensive system of indicators (CSI).

Model of Outcomes

Assumption

Assumption #1

A model of outcomes is needed for all students, and at the broadest level, should apply to all students regardless of the characteristics of individuals.

Implication: The model of outcomes developed must be comprehensive, including the range of outcomes desired for all students, including those in special education. However the relative emphasis on outcomes in education may vary for children and youth with particular characteristics. For some, we may demand attainment of only the cultural imperatives; for others we may demand mastery of calculus. This may result in specific indicators of outcomes being given differing emphasis for students depending on their individual characteristics.

Outcome Indicators

Assumptions

Assumption #2

Indicators of outcomes for students receiving special education services should be related, conceptually and statistically, to those identified for students without disabilities.

Implication: Indicators will be either general or specific, with most applying broadly across a range of characteristics (age levels, severity of disability, or types of disability) and some being specific to given levels of development, severity of disability, or types of disability. The most useful indicators will be those that apply to both general education and special education. Indicators also can be very specific, such as indicators that are relevant only to those students planning to enter college (e.g., SAT and ACT scores used in Wall Chart).

Assumption #3

Indicators should be unbiased with respect to gender, culture, race, and other characteristics of the diversity of students in today's school population.

Implication: Today's schools include students from diverse backgrounds. Indicators of outcomes must be a fair representation of the accomplishments of all, and understandable to multiple audiences and constituencies. Indicators for students with specific impairments related to methods of data collection should appropriately represent the students' attainment and not be affected by response-related impairments.

Assumption #4

While indicators should meet research standards, those that do not could still be used.

Implication: Indicators can be identified and defined in a way that would meet research standards. However not all data collected for an indicator may have these ideal characteristics. For some purposes, it is necessary to assess the effects and delineate the extent to which data can be less than optimal, yet included in the measurement of an indicator.

Comprehensive System of Indicators

Assumptions

Assumption #5

A comprehensive system of indicators should provide data needed to make policy decisions at the state and national levels.

Implication: Indicators are useful for policy when they represent variables that can be influenced by policy and management practices. Each indicator must be

useful in a policy context at a specific level. NCEO is initially concerned primarily with indicators for the state and national levels. Although an indicator that is useful at these levels may not be directly useful at the local level, a comprehensive model of indicators should be helpful at all levels of education in suggesting areas of importance for structuring learning and evaluation systems at district, school, and classroom levels. It is beneficial to delineate how indicators at different levels relate to each other. The application of definitions, concepts, and outcome areas will increasingly involve further application in local districts and classrooms.

Assumption #6

A comprehensive system of indicators should to the maximum extent possible be based on demonstrated functional relationships between outcome indicators and indicators of educational inputs, contextual characteristics, and processes; however, valued indicators may be included even if functional relationships have not been established.

Implication: A system of outcomes indicators should be part of the broader, evolving comprehensive picture of the educational system, including input, context, and process indicators. The education system exerts its primary influence on the management of resources and conditions of education. Assessment of educational outcomes, therefore, is most useful when it is linked to decisions that can be made to improve educational experiences for students. While the current and primary focus of NCEO is on developing a methodology to assess outcome indicators, attempts will be made to place these indicators within the broader comprehensive system of indicators. Specific efforts directed to special education outcome indicators must be based on existing special education research and on general education research on academic and related attainments.

Assumption #7

A comprehensive system of indicators should be flexible, dynamic, and responsive to review and criticism, changing to meet identified needs and future developments in the measurement of inputs, contexts, processes, and outcomes.

Implication: Identified indicators must be relevant to current circumstances and stakeholder values. When circumstances change, it must be recognized that there may be a need to change the system of indicators. The system must provide data relevant to current or anticipated problems and issues.

A Preliminary Model of Outcomes

Two possible models of outcomes are suggested in this section. They represent alternative ways of thinking about outcome areas and their relative importance. This thinking reflects the need repeatedly expressed by special educators for our educational system to go beyond assessment of only academic achievement, particularly if it is to be truly inclusive of all of America's students.

Model 1

One set of broad outcome areas and an initial breakdown that might be included in a model of outcomes are shown in Figures 4 and 5. In the model illustrated in Figure 4 we have identified five basic outcome areas:

Preliminary Model 1: Outcome Areas

Presence in the System

Participation in the System

Accomplishment

Contribution

Satisfaction

The outcome areas represent the foundation of the model of outcomes. The need for each of the five outcome areas is described in brief here, along with some examples of educational goals that are encompassed in each.

Presence in the system refers to opportunities for physical integration of students in schools and communities. While access to education is now recognized as a right of all students, this right has existed for students with disabilities only since 1975. Even today, the meaning of "presence in the system" varies. Thus, it is important not to lose sight of the need for students with disabilities to be included to

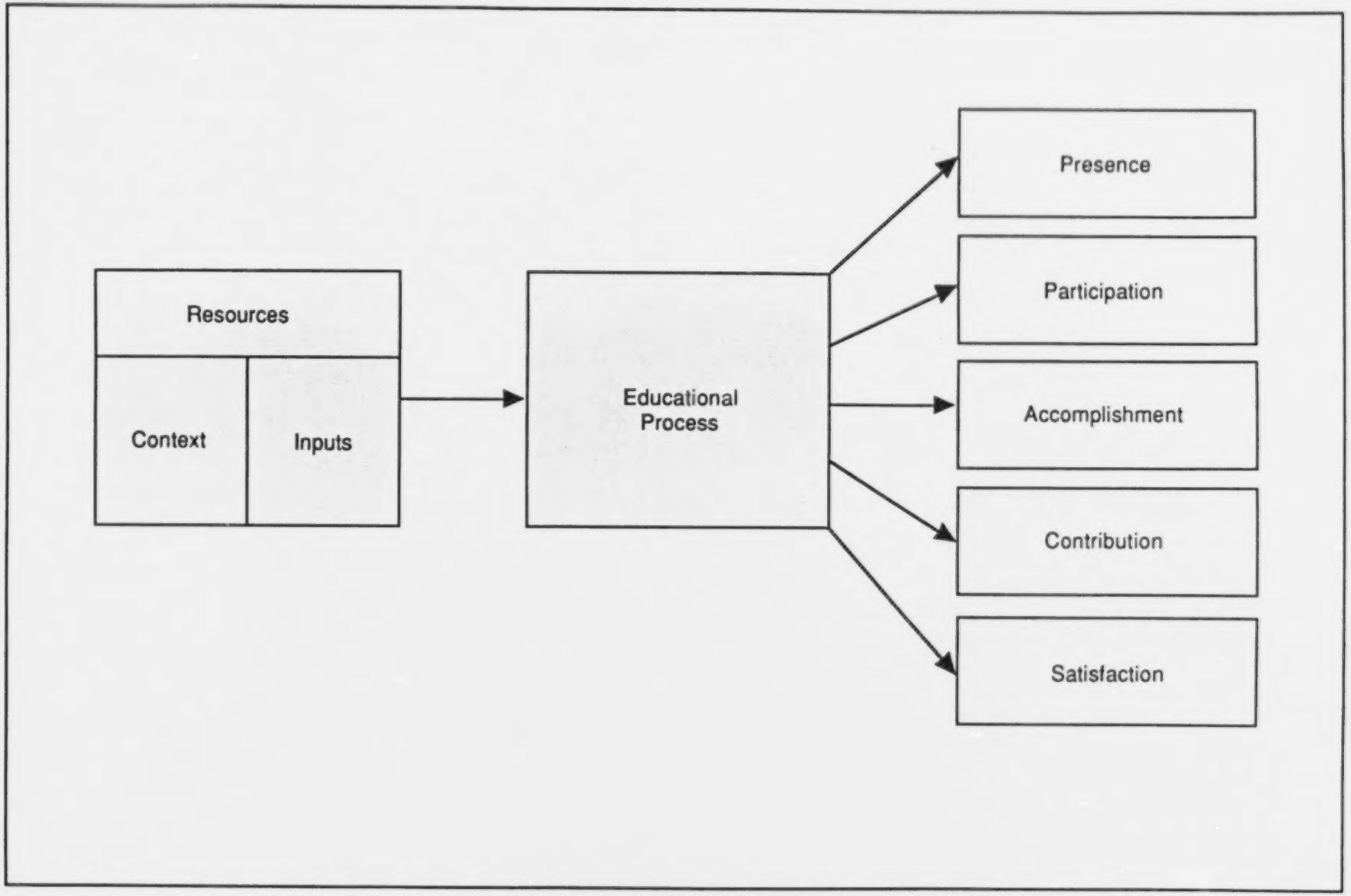

Figure 4. Important Parts of Educational Model 1

the maximum extent possible in the general education system. A reasonable goal for our nation is to increase the number of students receiving all or part of their education in regular education classes. Beyond school, a reasonable goal is to increase the number of people with disabilities who are gainfully employed.

The area of **Participation** addresses the extent to which persons with disabilities experience opportunities for active involvement in schools, social experiences and relationships, community participation, meaningful work and other essential areas of living. We know that a relationship exists for all individuals between their involvement in an activity and their commitment to the activity. Students who drop out of school tend to be those who have not been involved in extracurricular activities, those who have become alienated from the educational environment. We know that students who actively participate in their learning perform better than students who do not demonstrate active participation. Likewise, we know that individuals with disabilities show dramatic improvement in their adaptive behavior and self-help skills when they participate with peers who do not have disabilities. Participation is a critical aspect of our educational system. An important goal for our nation is to increase the number of ways in which students with disabilities participate in schooling events. For those beyond school, a goal is to increase the number of community events in which people with disabilities participate.

Accomplishment is perhaps the broadest and most complex area to define. It includes the skills and competencies considered important to the development of personal independence and productivity in family, social community and economic circumstances. Accomplishment can be academic in nature, but it also can be physical, attitudinal, or emotional. Academic accomplishments are the focus of most current goals. Two of our national goals relate most directly to this area of accomplishment:

> **Goal 2:** To increase the high school graduation rate to at least 90 percent by the year 2000
>
> **Goal 3:** To have American students leaving grades four, eight, and twelve having demonstrated competency in challenging subject matter including English, mathematics, science, history, and geography; and every school in America will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our modern economy.

It is equally important for all students with disabilities receiving education in regular classes to demonstrate progress along with their classmates. And, it is important for students with disabilities receiving education in special classes to demonstrate progress in academic and other areas.

The area of **Contribution** comprises a range of outcomes that describe the impact of the person in schools and communities. This area reflects the notion that individuals should give something back to society for the educational and other benefit provided. Common examples in this area include volunteerism, paying taxes, and not committing crimes. During the school years, this also could be interpreted as including serving on student committees, keeping instructional materials in good condition, and not defacing school property. Many of these same goals can be defined for individuals with disabilities. We want them to be contributing members to our society.

Finally, the proposed model includes the area of **Satisfaction** to suggest that an important aspect of outcomes is the level of personal and broad community satisfaction with the results of education. We strive for satisfaction in more than just the students with the educational process,. We also want the satisfaction of educators and future employers. Much of the impetus for continued educational reform has come from the business community and its realization that schools are not producing individuals with the skills necessary to assume jobs in the workforce. Satisfaction goals that we now have apply to individuals with disabilities. We want these students and their parents to be satisfied with their education. We also want those who interact with them in the future, particularly employers, to be satisfied with the skills that they bring to the job.

The five broad outcome areas of **presence, participation, accomplishment, contribution, and satisfaction** can be organized into a model of outcomes similar to that shown in Figure 5. The five outcome areas represent the foundation of the model. Each of the areas can next be further divided into domains, some of which are school outcomes and others of which are postschool outcomes. For example, accomplishment can be divided into domains of socioemotional, health and physical competence, cognitive/conceptual, attitudes, adaptive living, and possibly others. Each of the domains can be further divided into subdomains. For example, cognitive/conceptual outcomes could include quantitative, writing, communication (literacy/reading), language, critical thinking, and probably others.

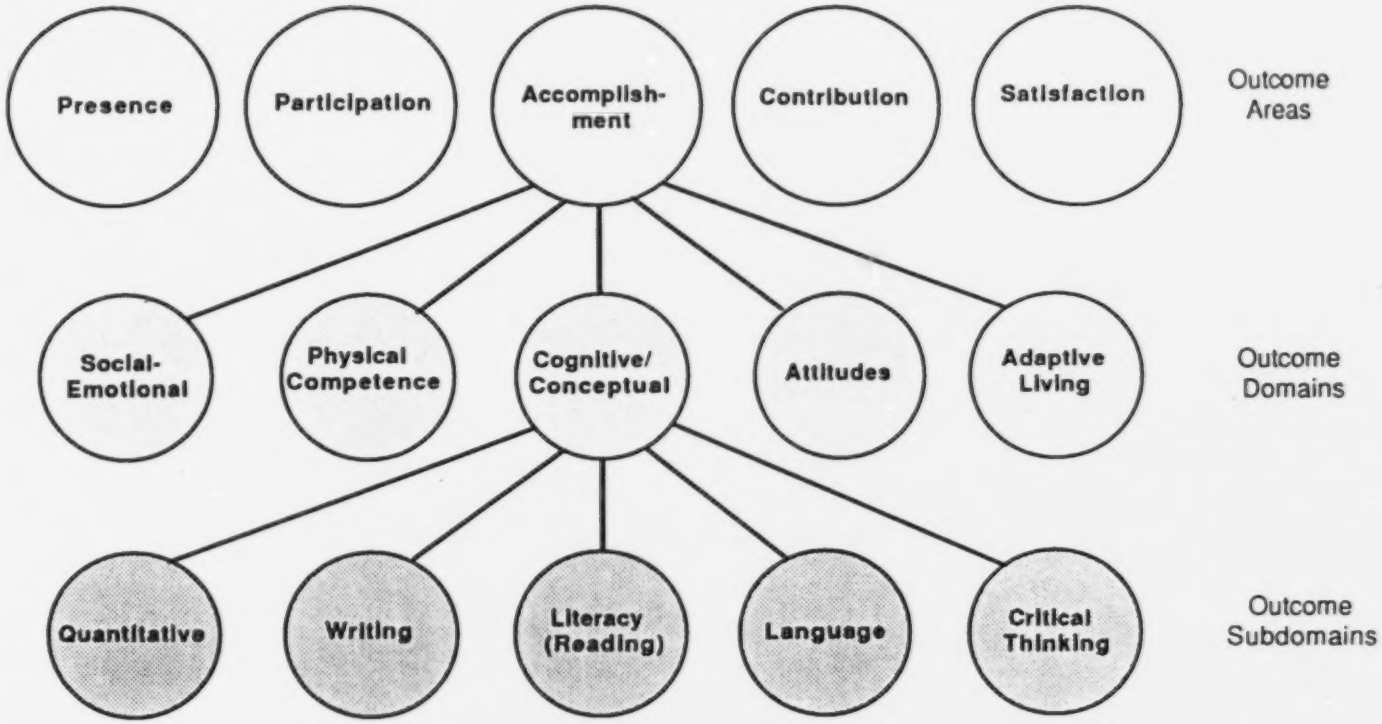

Figure 5. Conceptual Model of Outcome Areas, Domains, Subdomains, and Indicators

Model 2

While the importance of the five outcome areas is clear, the suggested equal value of some of the five outcomes, presence and participation for example, to accomplishment has been questioned. Currently, major education policy groups focus almost entirely on accomplishments. Presence and participation are mentioned almost exclusively in relation to graduation rate and dropout rate. Only rarely are satisfaction and contribution (such as volunteerism) included.

An alternative model to one showing five broad outcomes is illustrated in Figure 6. Here all outcomes are viewed as accomplishments, and accomplishments are evaluated in each of nine basic outcome domains within Accomplishments:

Preliminary Model 2: Outcome Domains in Accomplishments

Cognitive and Conceptual
Affective and Emotional
Attitudes
Physical and Health
Contribution
Satisfaction
Adaptive Living
Participation
Presence

Each of these domains would then be further subdivided. For example, cognitive/conceptual could be divided into the subdomains of literacy, writing, quantitative, language, critical thinking, and others. Participation could be divided into subdomains such as extracurricular activities, appropriate leisure activities, post-secondary education, and others.

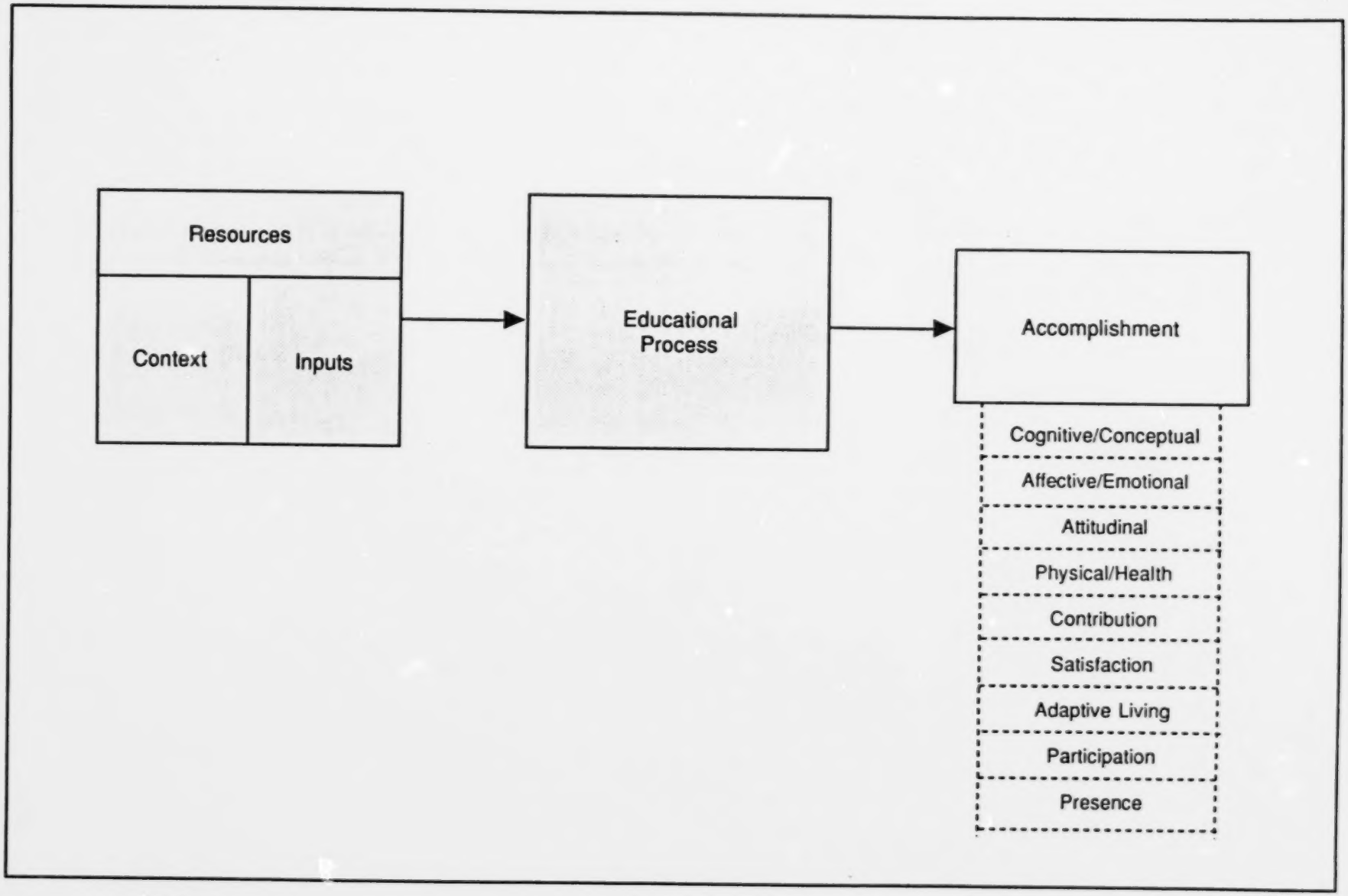

Figure 6. Important Parts of Educational Model 2

A System of Indicators

The long range work of the NCEO will focus upon refinement and agreement on components of a conceptual model and a Comprehensive System of Indicators to describe and evaluate educational experiences for children, youth and adults with disabilities.

When the model shown in Figure 4 or 6 is completely specified, it will be possible to list specific indicators that can be used to assess outcomes for evaluative and decision-making purposes. In the table below we have listed an illustrative set of indicators for several outcomes areas. These were chosen as illustrative only, and are viewed as springboards for discussion. The listing of indicators highlights several issues in assessment of outcomes for students with disabilities. These unresolved issues are discussed in the next section.

Possible Outcomes and Indicators for Selected Domains

Outcome Domain	Outcome	Indicator
Presence	Students attend school	• Dropout rate • Suspension rate
Physical/Health	Normal growth and development	• Proportion of children in expected range
	Adequately nourished to participate in school	• Nutritional status of children
Affective/Emotional	Absence of crime	• Violent deaths • Juvenile crime
Satisfaction	Employers and post-secondary educators are satisfied with the products of the educational system	• Number or proportion of employers and post-secondary educators satisfied with the products of the educational system

Possible Outcomes and Indicators for Selected Domains -- continued

Outcome Domain	Outcome	Indicator
Contribution	Makes a positive contribution to family, school, and community	• Number of people who pay taxes • Number of people who rely on social support networks
Cognitive/Conceptual	Reads at proficient level	• Percentages of students at proficient level or NAEP reading assessment

Many of the outcomes and indicators in this table are derived from materials prepared for an "Outcomes Group Meeting" (April 17-18, 1991) of **Joining Forces**, a joint project of the American Public Welfare Association (APWA) and the Council of Chief State School Officers (CCSSO).

Unresolved Issues

In considering possible outcomes for children and youth with disabilities several issues must be addressed. Decisions about these issues will directly affect the nature of the outcomes model and the indicators that are identified. Those who read this paper are encouraged to submit to us their thoughts on the issues.

Educators and policy makers must decide specifically the outcome areas in which data will be collected on students with disabilities. Currently there is considerable variability in the kinds of data that state departments of education collect, and there is little consistency in the outcome domains in which data are collected. For the most part, those states that do collect outcome data gather data on student academic accomplishments (reading, math, etc). Data are collected using published instruments or state mastery tests. It is common for students with disabilities to be excluded from statewide testing programs. We think the following kinds of issues will have to be resolved before decisions can be made on the specific kinds of indicators to be used.

Intended Versus Unintended Outcomes

One of the broad issues to be address is whether to collect information only on those outcomes that were intended, or to also look at unintended outcomes. For example, having an effect on the emotional well-being of an individual may be an unintended outcome of increasing educational standards. Yet, it could be argued that if the imposition of new standards increases the suicide rate among adolescents, it becomes an important educational outcome about which we need to know. There are many potential unintended outcomes of education. The extent to which these can be identified and, if identified, used in a model of outcomes for education will require considerable discussion.

Direct Versus Indirect Outcomes

One of the broad issues to be addressed is the directness of outcomes in which we are interested. We can talk about direct outcomes, or we can talk about indirect outcomes, or we can talk about both. Direct outcomes are those outcomes for which schools can be held directly accountable, such as a student being able to read at a

certain level or a student being able to tell time. Indirect outcomes are those that are less obviously tied to the school curriculum, such as a student being gainfully employed upon graduation. Most often, direct outcomes are those that a student should be able to demonstrate at various points during and at the end of a school career. Indirect outcomes more often are those that a student would demonstrate after finishing school, but not always. The distinction remains that some outcomes are more directly linked to school programs than others. At some point we must make a decision about how closely linked our identified outcomes must be to the educational programs we provide. The primary focus in our work is on direct outcomes. Yet, research obviously is needed and should be pursued in the "indirect outcomes" area, since direct outcomes (what schools teach) are influenced by many factors before resulting in the indirect outcomes, particularly as severity of disability increases.

Same Versus Different Indicators

A decision must be made on the extent to which indicators for students with disabilities should differ from indicators for students who are not disabled. We have made the assumption that indicators of outcomes for students receiving special education services should be related, conceptually and statistically, to those identified for students without disabilities. Does this mean that special education will or will not have a separate set of indicators? There are two prevailing views on this matter. Many believe that the indicators used in special and general education ought to be identical. They believe that the same kinds of data should be gathered on all students. For others, it makes little sense to expect that students with disabilities, especially those with very severe disabilities, can or should participate in the assessment system used to gather outcomes data on students who are not disabled. It is argued that "different" kinds of data will have to be gathered on students with disabilities, and that a separate assessment system will have to be developed.

Category Specific Versus Noncategorical Indicators

A decision must be made about whether different kinds of data will be collected as a function of student characteristics. We have assumed that "A model of outcomes is needed for all students, and at the broadest level, should apply to all students regardless of the characteristics of individuals. " We assume that the same kinds of data would be gathered on the different categories of students. Others take issue with this assumption. They argue that category-specific indicators are needed, since

students in the various categories have unique needs. Such a position is reflected in data collection efforts that are category specific.

Indicators Differentiated by Severity of Disability

A decision must be made about whether outcomes differ as a function of severity of disability. Will different kinds of data be gathered on students with severe impairments in contrast to those with mild impairments, perhaps ignoring the specific category of disability? Or, will we gather the same kinds of data, but expect different levels of accomplishment?

Indicators Differentiated by Developmental Level

A decision must be made about whether outcomes differ at differing developmental levels. Do we gather the same kinds of data on infants, at school entrance, during school, and post-school? Or are different kinds of data gathered at these different developmental levels, or at some subset of them?

System Level Versus Individual Level Indicators

We must decide whether the system of indicators we develop should be indicators at the system level, the level of the individual, or some mixture of the two. Some outcomes are system-level outcomes while others are individual-level outcomes. For example, when we talk about the percentage of students graduating from school, or the percentage of students passing a minimal competency test, we are talking about system-level outcomes. When we talk about the average reading score of tenth graders or a student's degree of involvement in volunteer activities, we are talking about individual-level outcomes. Both of these levels have been used in most discussions of outcomes. Whether these levels should remain together, be separated, or be addressed through some other option, will be debated.

Summary

In response to the need for educational policy to be truly inclusive of all students, and to improve educational results for students with disabilities, NCEO has been established to promote the development of a comprehensive system of educational outcome indicators for infants, children, and youth with disabilities. The Center also seeks to promote national discussion of educational goals and indicators of educational outcomes that are inclusive of students with disabilities. The Center is fulfilling its mission through development of a model of outcomes, identification of indicators, descriptions of state practices, analysis of available data, development of solutions to technical issues, and dissemination of information.

This paper is a description of some initial efforts to define outcomes and indicators, develop operating assumptions, and illustrate a tentative model of outcomes and the development of indicators from it. Further work will be undertaken to refine these concepts, through an extensive development and consensus review process, and the eventual development of a comprehensive compendium of outcomes and outcome indicators. This effort will lead further to the resolution of technical issues, technical assistance activities, and national data from available sources, on educational status and outcomes of children and youth with disabilities.

The consensus process will be directed toward a number of goals, with the emphasis changing over time. Awareness building, exchange of information, and formalizing relationships are among the major targeted goals for the the Center's first two years. As these goals are met, greater emphasis will be placed on influencing and convincing, mobilizing regional and state discussions, and creating dialog among states, national policy groups, and federal groups. The end goal of the consensus process is to achieve agreement, and shared vision, and cooperation within and among states and federal groups. Strategies for the consensus building process include structured meetings (using nominal group procedures, computerized systems, and learning and development approaches.), mail and phone connections, and a computerized communication network. The consensus process also will be strengthened through the participation of Center staff in other groups' activities and

through presentations and information exchanges at conferences. Reactions to this paper represent one very important step in the consensus building process. Some important questions on which input is desired include:

1. Do the outcome areas defined in the preliminary model (either Model 1 or Model 2) include all that should be covered and that apply to all students?

2. To what extent do the listed Assumptions seem appropriate as we begin to address the issue of constructing a conceptual model of outcomes and a comprehensive list of indicators?

3. What is your opinion of each of the issues identified in the Unresolved Issues section?

   Intended vs Unintended Outcomes

   Direct vs Indirect Outcomes

   Same vs Different Indicators

   Category Specific vs Noncategorical indicators

   Indicators Differentiated by Severity of Disability

   Indicators Differentiated by Developmental Level

   System Level vs Individual Level Indicators

4. Are there additional issues that need to be addressed?

5. Part of the Center's purpose is to engage in consensus-building around the model of outcomes and the comprehensive system of indicators. Is this an achievable goal? What can we do to maximize the possibility of building consensus?

Please call Jim Ysseldyke (612-624-0414) or Martha Thurlow (612-624-4826) with comments, or send FAX to 612-624-9344 or 612-624-0879, or mail them to:

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We look forward to your input.

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Although the individuals listed above provided us with many and varied comments and suggestions about this Working Paper, the responsibility for the paper is solely that of the authors. We selectively picked among the many ideas presented to us by readers. Thus, the above individuals should not be considered to agree with all of its contents.